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(71) Applicant: **Apple Inc.**
Cupertino, CA 95014 (US)

(72) Inventors:
• **Westerman, Wayne Carl**
San Francisco, CA 94107 (US)
• **Greer Elias, John**
Townsend, DE 19734 (US)

(74) Representative: **Lang, Johannes**
Bardehle Pagenberg
Postfach 86 06 20
81633 München (DE)

(54) **Method and apparatus for integrating manual input**

(57) Apparatus and methods are disclosed for simultaneously tracking multiple finger (202-204) and palm (206, 207) contacts as hands approach, touch, and slide across a proximity-sensing, compliant, and flexible multi-touch surface (2). The surface consists of compressible cushion (32), dielectric electrode (33), and circuitry layers. A simple proximity transduction circuit is placed under each electrode to maximize the signal-to-noise ratio and to reduce wiring complexity. Scanning and signal offset removal on electrode array produces low-noise proximity images. Segmentation processing of each proximity image constructs a group of electrodes corresponding to each distinguishable contacts and extracts shape, position and surface proximity features for each group. Groups in successive images which correspond to the same hand contact are linked by a persistent path tracker (245) which also detects individual contact touch-down and liftoff. Classification of intuitive hand configurations and motions enables unprecedented integration of typing, resting, pointing, scrolling, 3D manipulation, and handwriting into a versatile, ergonomic computer input device.

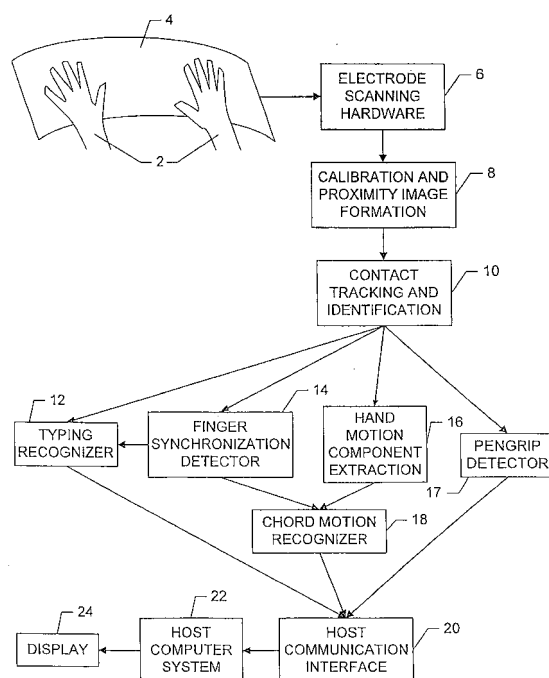


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 10 01 0057

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 97/36225 A1 (SYNAPTICS INC [US]) 2 October 1997 (1997-10-02) * page 6, lines 25-26 * * page 11, line 15 - page 71, line 10; figures 1-21 *	1-45	INV. G06F3/048
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			TECHNICAL FIELDS SEARCHED (IPC)
			G06F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 November 2011	Examiner Arranz, José
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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